determine a capacitance of capacitor bank **104** at least in part from average current signal **316** and/or voltage **314**.

[0045] As indicated above, control device **306** can be configured to limit the magnitude of the current flowing into inductor **302** during the pre-charging process. In this manner, a current sensing device **322** can be configured to monitor, measure and/or sense a current flowing into inductor **302** and to provide a signal **324** indicative of the current to control device **306**. In alternative embodiments signal **324** can be sent through a filter, such as an RC filter, to reduce a level of noise associated with signal **324**. Control device **306** can generate a pulse train and provide the pulse train to power switch **304**, thereby causing power switch to turn on or off in accordance with the pulse train. In example embodiments, control device **306** can be configured to adjust a duty cycle of the pulse train based at least in part on current signal **324**. In particular, control device **306** can be configured to drive the pulse signal low when current signal **324** reaches a current threshold, thereby causing power switch **304** to turn off or otherwise operate in an open state. At the initiation of the immediately subsequent modulation period, the pulse signal can be driven high until current signal **324** again reaches the current threshold. In this manner, for each modulation period of the pulse train generated by control device **306**, power switch **304** can be turned on until the current flowing through power switch **304** reaches the current threshold. As will be described in more detail below with respect to FIG. **6**, in embodiments wherein the current limiting device of the pre-charge circuit is an inductor device (e.g. inductor **302**), when power switch **304** is turned off, current can discharge from inductor **302** causing the charging current applied to capacitor bank **104** to approximate an average current flowing through inductor **302**. In such embodiments, the pre-charge circuit can further include a flyback diode **326** coupled between inductor **302** and ground. In this manner, flyback diode **326** can be used to flyback the charging current, when power switch **304** is turned off.

[0046] FIG. **6** depicts a plot of an example current signal **324** of an inductive current limiting device according to example embodiments of the present disclosure. In particular, current signal **324** can include charge period **402** and a discharge period **404**. Charge period **402** and discharge period **404** can occur at least in part during each modulation period **406** of the pulse train generated, for instance, by control device **306**. It will be appreciated that the duration of modulation period **406** can be any suitable duration. In a particular implementation, the duration of modulation period **406** can be selected based at least in part on the value of the inductance of inductor **302**.

[0047] As shown, charge period **402** can occur during an initial portion of modulation period **406**. In particular, charge period **402** can occur when power switch **304** is turned on, thereby causing current to flow through inductor **302**. The inductive properties of inductor **302** can cause inductor **302** to oppose the flow of current, thereby causing the current through inductor **302** to ramp up as inductor **302** stores energy. As indicated above, when current signal **324** reaches a current threshold (e.g. 1 ampere), control device **306** can cause power switch **304** to turn off, thereby cutting off the flow of current to inductor **302**. Such occurrence can cause inductor **302** to begin discharging current in accordance with current signal **324** during discharge period **404**. As shown, inductor **302** can discharge current until signal **324** reaches 0 amperes. Current signal **324** can then remain at 0 amperes until the beginning of the next modulation period when power switch **304** is turned on and inductor **302** begins to again store energy. In this manner, the load current (e.g. the average current applied to capacitor bank **104**) can generally be about one half of the threshold current.

[0048] It will be appreciated however, that current signal **324** may not reach 0 amperes prior to the end of modulation period **406**. In such occurrence, power switch **304** may still be turned on at the beginning of the next modulation period in accordance with example embodiments of the present disclosure.

[0049] FIG. **7** depicts a flow diagram of an example method (**500**) of pre-charging a capacitor bank according to example embodiments of the present disclosure. The method (**500**) can be implemented at least in part using one or more control devices, such as one or more of the controllers depicted in FIG. **5**. In addition, FIG. **7** depicts steps performed in a particular order for purposes of illustration and discussion. Those of ordinary skill in the art, using the disclosures provided herein, will understand that the steps of any of the methods disclosed herein can be modified, expanded, omitted, rearranged, and/or adapted in various ways without deviating from the scope of the present disclosure.

[0050] At (**502**), method (**500**) can include initiating a pre-charging process for a capacitor bank. The capacitor bank can include one or more capacitor devices coupled in series and/or in parallel. The capacitor bank can be coupled to a power switch and a current limiting device. In particular, the power switch and the current liming device can be coupled in series between a power source and the capacitor bank. As indicated above, the power switch and the current limiting device can be configured to limit a peak amount of current applied to the capacitor bank.

[0051] At (**504**), method (**500**) can include applying a DC voltage for use in pre-charging the capacitor bank. The DC voltage can be supplied by the DC power source, and can be any suitable voltage level.

[0052] At (**506**), method (**500**) can include monitoring a magnitude of the current flowing into the current limiting device. In particular, in embodiments wherein the current limiting device is an inductor device, the current through the inductor device can increase over time for at least an initial time period. For instance, the current through the inductor can increase linearly with time. Such current can be monitored at least in part using a current sensing device, such as a current sensing resistor or other current sensing device. In particular, the current sensing device can be coupled in series between the power switch and the current limiting device. The current sensing device can provide a signal indicative of the current applied to the current limiting device to one or more control devices, such as one or more of the control devices of FIG. **5**.

[0053] At (**508**), method (**500**) can include selectively controlling operation of the power switch based at least in part on the monitored current. In particular, the power switch may be controlled to turn off when the magnitude of the monitored current reaches a current threshold. For instance, the current threshold can be between about 0.7 amperes and 1.5 amperes. In example embodiments, the power switch can be driven using PWM techniques. In this manner, the